
Induction of fibroblast growth factor 10 (FGF10) in the ileal crypt epithelium after massive small bowel resection suggests a role for FGF10 in gut adaptation.

Journal: Dev Dyn

Publication Year: 2009

Authors: Cindy C Tai, Jennifer L Curtis, Frederic G Sala, Pierre M Del Moral, Nikunj Chokshi, Robert J Kanard, Denise Al Alam, Jin Wang, R Cartland Burns, Henri R Ford, Anatoly Grishin, Kasper S Wang, Saverio Bellusci

PubMed link: 18773490

Funding Grants: Training Grant 1

Public Summary:

We have previously reported that fibroblast growth factor 10 (FGF10) is crucial for the survival and proliferation of progenitor cells during embryonic gastrointestinal development. We sought to characterize the potential role of FGF10 signaling in the adaptive response following small bowel resection. Adult wild-type and Fgf10(LacZ) mice underwent 50% small bowel resection (SBR) or sham operation. Tissues were harvested 24 or 48 hr after surgery for histology, immunohistochemistry, and in situ hybridization. After SBR, Fgf10 expression was demonstrated in the epithelium at the base of the crypts. Moreover, there was a statistically significant increase in proliferating cells and goblet cells after SBR. In vitro studies using rat intestinal epithelial crypt (IEC-6) cells exposed to medium with or without recombinant FGF10 showed increased proliferation and phosphorylation of Raf and AKT with the addition of FGF10. Our results suggest that FGF10 may play a therapeutic role in diseases involving intestinal failure.

Scientific Abstract:

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